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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/752,978	01/07/2004	Jacob H. Oaknin	0402US-Oaknin	4813
23521	7590	03/09/2005	EXAMINER	
SALTAMAR INNOVATIONS 30 FERN LANE SOUTH PORTLAND, ME 04106			TANINGCO, MARCUS H	
			ART UNIT	PAPER NUMBER
			2878	

DATE MAILED: 03/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/752,978

Applicant(s)

OAKNIN ET AL.

Examiner

Marcus H. Taningco

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                                    | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### **Claim Rejections - 35 USC § 112**

1. Claims 23, 24, and 27-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 23 and 24 recites the term "Medium energy" which is a relative term which renders the claim indefinite. The phrase " clinically acceptable acquisition time " is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention.

Claims 27-30 recites the phrase "clinically acceptable acquisition time" which is a relative term which renders the claim indefinite. The phrase " clinically acceptable acquisition time " is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention.

The balance of the claims are rejected based on their dependencies.

### **Claim Rejections - 35 USC § 103**

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bennett et al. (H12) in view of Juni (US 2003/0136912).

Re claim 1, Bennett et al. discloses a method of obtaining and reconstructing an image of a portion of a body (Fig. 3) administered by a radiopharmaceutical substance radiating gamma rays by using SPECT (Col. 2, 34-35) for the determination of functional information thereon (Col. 1) which would comprise the steps of acquiring photons with a detector 10 of the recited type, processing the electric signals with a position logic circuitry for the recited result (Col. 3, 43-53), and reconstructing an image by processing such data (Fig. 9). The method taught by Bennett et al. lacks the step wherein acquiring adjacent angular projections are separated by at least 5 degrees. Juni discloses a SPECT system wherein the angular projections are separated by an angle larger than 5 degrees [0087]. It would have been obvious to one with ordinary skill in the art at the time the invention was made to modify Bennett et al. to include the system taught by Juni in order to significantly reduce scan times, thereby reducing the effects of patient motion.

Re claims 2-5, Bennett et al. discloses the claimed invention but lacks the step wherein acquiring adjacent angular projections are separated by at least 5 degrees. Juni discloses a SPECT system wherein the angular projections are separated by an angle larger than 5 degrees, which is within the recited range [0087]. It would have been obvious to one with ordinary skill in the art at the time the invention was made to modify Bennett et al. to include the system taught by Juni in order to significantly reduce scan times, thereby reducing the effects of patient motion.

Re claim 6, Bennett et al. discloses a method comprising the steps of reconstructing an image by processing said data (Fig. 9) and taking into consideration weight values of the recited type (Col. 7, 37-50) in that they are a function of solid angles between different discrete elements  $k$  of the body portion and corresponding discrete elements  $ik$  of the projection of the body portion on the detector.

4. Claims 7, 8, 11-15, 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bennett et al. (H12) in view of Perez-Mendez (US 5,596,198).

Re claims 7 and 14, Bennett et al. discloses a method of obtaining and reconstructing an image of a portion of a body (Fig. 3) administered by a radiopharmaceutical substance radiating gamma rays by using SPECT (Col. 2, 34-35) for the determination of functional information thereon (Col. 1) which would comprise the steps of acquiring photons with a detector **10** of the recited type, processing the electric signals with a position logic circuitry for the recited result (Col. 3, 43-53), and reconstructing an image by processing such data (Fig. 9). The method taught by Bennett et al. fails to specify the acquisition time. Perez-Mendez discloses a gamma ray camera capable of obtaining an image with an acquisition time less than 20 minutes (Col. 7,

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28-37). It would have been obvious to one with ordinary skill in the art at the time the invention was made to modify Bennett et al. to include a faster acquisition time taught by Perez-Mendez in order to significantly reduce scan times, thereby reducing the effects of patient motion.

Re claims 8-11, Bennett et al. discloses the claimed invention but fails to specify the acquisition time. Perez-Mendez discloses a gamma ray camera capable of obtaining an image with an acquisition time less than 16 minutes (Col. 7, 28-37). It would have been obvious to one with ordinary skill in the art at the time the invention was made to modify Bennett et al. to include a faster acquisition time taught by Perez-Mendez in order to significantly reduce scan times, thereby reducing the effects of patient motion.

Re claims 12 and 25, Bennett et al. discloses a method comprising the steps of reconstructing an image by processing said data (Fig. 9) and taking into consideration weight values of the recited type (Col. 7, 37-50) in that they are a function of solid angles between different discrete elements  $k$  of the body portion and corresponding discrete elements  $ik$  of the projection of the body portion on the detector.

Re claims 13 and 26, Bennett et al. teaches a system for single photon emission studies (Col. 2, 32-35) operating in list mode (Abs.).

Re claim 15, Bennett et al. discloses a method of obtaining and reconstructing an image of a portion of a body, including bones as interpreted by the Examiner (Fig. 3), administered by a radiopharmaceutical substance radiating gamma rays by using SPECT (Col. 2, 34-35) for the determination of functional information thereon (Col. 1) comprising a single detector crystal (Col. 1, 28-29) wherein the gantry 12 rotates 360 degrees. Although Bennett et al. fails to specify the type of substance, it would have been an obvious matter of design choice use

Technetium, since applicant has not disclosed that Technetium solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with any radiopharmaceutical imaging materials.

5. Claims 16-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bennett et al. and Perez-Mendez as applied to claim 14 above, and further in view of Jeanguillaume (US 5,448,073).

Re claims 16 and 18, Bennett et al. discloses a method of obtaining and reconstructing an image of a portion of a body, including bones as interpreted by the Examiner (Fig. 3), administered by a radiopharmaceutical substance radiating gamma rays by using SPECT (Col. 2, 34-35) for the determination of functional information thereon (Col. 1) wherein the gantry 12 rotates 360 degrees. Although Bennett et al. fails to specify the type of substance, it would have been an obvious matter of design choice use Technetium, since applicant has not disclosed that Technetium solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with any radiopharmaceutical imaging materials. The method taught by Bennett et al. fails to specify the acquisition time. Perez-Mendez discloses a gamma ray camera capable of obtaining an image with an acquisition time less than 10 minutes (Col. 7, 28-37). It would have been obvious to one with ordinary skill in the art at the time the invention was made to modify Bennett et al. to include a faster acquisition time taught by Perez-Mendez in order to significantly reduce scan times, thereby reducing the effects of patient motion. Although the detector in the method of Bennett et al. may be presumed to be a single photon detector crystal, the use of a detector with a detector comprising a plurality of single crystals is shown by Jeanguillaume (Fig. 11). In view of the ability to choose a scintillating

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material regardless of its ability to form a large, single crystal afforded by the construction suggested by Jeanguillaume, it would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the combination taught by Bennett et al. and Perez-Mendez to use a detector as suggested by Jeanguillaume.

Re claim 17, Bennett et al. discloses a method of obtaining and reconstructing an image of a portion of a body, including bones as interpreted by the Examiner (Fig. 3), administered by a radiopharmaceutical substance radiating gamma rays by using SPECT (Col. 2, 34-35) for the determination of functional information thereon (Col. 1) comprising a single detector crystal (Col. 1, 28-29) wherein the gantry 12 rotates 360 degrees. Although Bennett et al. fails to specify the type of substance, it would have been an obvious matter of design choice use Technetium, since applicant has not disclosed that Technetium solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with any radiopharmaceutical imaging materials. The method taught by Bennett et al. fails to specify the acquisition time. Perez-Mendez discloses a gamma ray camera capable of obtaining an image with an acquisition time less than 13 minutes (Col. 7, 28-37). It would have been obvious to one with ordinary skill in the art at the time the invention was made to modify Bennett et al. to include a faster acquisition time taught by Perez-Mendez in order to significantly reduce scan times, thereby reducing the effects of patient motion.

Re claim 19, Bennett et al. discloses a method of obtaining and reconstructing an image of a portion of a body, including cardiac imaging as interpreted by the Examiner (Fig. 3), administered by a radiopharmaceutical substance radiating gamma rays by using SPECT (Col. 2, 34-35) for the determination of functional information thereon (Col. 1) comprising a single



detector crystal (Col. 1, 28-29) wherein the gantry 12 rotates 360 degrees. Although Bennett et al. fails to specify the type of substance, it would have been an obvious matter of design choice use Technetium and Thallium, since applicant has not disclosed that Technetium and Thallium solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with any radiopharmaceutical imaging materials. The method taught by Bennett et al. fails to specify the acquisition time. Perez-Mendez discloses a gamma ray camera capable of obtaining an image with an acquisition time less than 15 minutes (Col. 7, 28-37). It would have been obvious to one with ordinary skill in the art at the time the invention was made to modify Bennett et al. to include a faster acquisition time taught by Perez-Mendez in order to significantly reduce scan times, thereby reducing the effects of patient motion.

Re claim 20, Bennett et al. discloses a method of obtaining and reconstructing an image of a portion of a body, including cardiac imaging as interpreted by the Examiner (Fig. 3), administered by a radiopharmaceutical substance radiating gamma rays by using SPECT (Col. 2, 34-35) for the determination of functional information thereon (Col. 1) wherein the gantry 12 rotates 360 degrees. Although Bennett et al. fails to specify the type of substance, it would have been an obvious matter of design choice use Technetium and Thallium, since applicant has not disclosed that Technetium and Thallium solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with any radiopharmaceutical imaging materials. The method taught by Bennett et al. fails to specify the acquisition time. Perez-Mendez discloses a gamma ray camera capable of obtaining an image with an acquisition time less than 10 minutes (Col. 7, 28-37). It would have been obvious to one with ordinary skill in the art at the time the invention was made to modify Bennett et al. to

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include a faster acquisition time taught by Perez-Mendez in order to significantly reduce scan times, thereby reducing the effects of patient motion. Although the detector in the method of Bennett et al. may be presumed to be a single photon detector crystal, the use of a detector with a detector comprising a plurality of single crystals is shown by Jeanguillaume (Fig. 11). In view of the ability to choose a scintillating material regardless of its ability to form a large, single crystal afforded by the construction suggested by Jeanguillaume, it would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the combination taught by Bennett et al. and Perez-Mendez to use a detector as suggested by Jeanguillaume.

Re claim 21, Bennett et al. discloses a method of obtaining and reconstructing an image of a portion of a body, including the brain as interpreted by the Examiner (Fig. 3), administered by a radiopharmaceutical substance radiating gamma rays by using SPECT (Col. 2, 34-35) for the determination of functional information thereon (Col. 1) comprising a single detector crystal (Col. 1, 28-29). Although Bennett et al. fails to specify the type of substance, it would have been an obvious matter of design choice use Technetium and Thallium, since applicant has not disclosed that Technetium and Thallium solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with any radiopharmaceutical imaging materials. The method taught by Bennett et al. fails to specify the acquisition time. Perez-Mendez discloses a gamma ray camera capable of obtaining an image with an acquisition time less than 15 minutes (Col. 7, 28-37). It would have been obvious to one with ordinary skill in the art at the time the invention was made to modify Bennett et al. to include a faster acquisition time taught by Perez-Mendez in order to significantly reduce scan times, thereby reducing the effects of patient motion.

Re claim 22, Bennett et al. discloses a method of obtaining and reconstructing an image of a portion of a body, including the brain as interpreted by the Examiner (Fig. 3), administered by a radiopharmaceutical substance radiating gamma rays by using SPECT (Col. 2, 34-35) for the determination of functional information thereon (Col. 1). Although Bennett et al. fails to specify the type of substance, it would have been an obvious matter of design choice use Technetium and Thallium, since applicant has not disclosed that Technetium and Thallium solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with any radiopharmaceutical imaging materials. The method taught by Bennett et al. fails to specify the acquisition time. Perez-Mendez discloses a gamma ray camera capable of obtaining an image with an acquisition time less than 15 minutes (Col. 7, 28-37). It would have been obvious to one with ordinary skill in the art at the time the invention was made to modify Bennett et al. to include a faster acquisition time taught by Perez-Mendez in order to significantly reduce scan times, thereby reducing the effects of patient motion. Although the detector in the method of Bennett et al. may be presumed to be a single photon detector crystal, the use of a detector with a detector comprising a plurality of single crystals is shown by Jeanguillaume (Fig. 11). In view of the ability to choose a scintillating material regardless of its ability to form a large, single crystal afforded by the construction suggested by Jeanguillaume, it would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the combination taught by Bennett et al. and Perez-Mendez to use a detector as suggested by Jeanguillaume.

## Conclusion


6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kaufman (US 2004/0208276) discloses a method and device for improving time resolution of an imaging device.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marcus H. Taningco whose telephone number is (571) 272-1848. The examiner can normally be reached on M - F 8:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MT

  
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